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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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IM22/1009

EXAMINER

IP, S

ART UNIT

PAPER NUMBER

1742

DATE MAILED: 10/09/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

Applicant(s)

Examiner

Group Art Unit

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 7/25/01
- ☒ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1 - 20 is/are pending in the application.
- Of the above claim(s) 15 - 20 is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1 - 14 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____.
 - ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

Office Action Summary

DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-14 are, drawn to a lead-free solder, classified in class 148, subclass 400+.

II. Claims 15-20 are, drawn to a method of surface-treating a PWD, classified in class 228, subclass 120+.

2. The inventions are distinct, each from the other because:

Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the process for using the product as claimed can be practiced with another materially different product such as Pb-Sn solders.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. Because these inventions are distinct for the reasons given above and the

search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

5. A restriction requirement may be withdrawn in view of a clear admission by the applicant that the unpatentability of Group I invention would imply the unpatentability of the Group II and III inventions. *In re Lee*, 199 USPQ 108 (Cmr. Pats. 1978).

6. Applicant's election with traverse of Group I, claims 1-14, in Paper No. 6, filed July 25, 2001 is acknowledged. The traversal is on the ground(s) as set forth in page 3 of the instant remarks. This is not found persuasive because applicants did not submit a clear admission that the unpatentability of Group I invention would imply the unpatentability of the other Group(s). *In re Lee*, 199 USPQ 108 (Cmr. Pats. 1978). Therefore, the instant Groups are patentably distinct. Furthermore, the burden to search all claims has been shown by different classifications for each Group of instant invention as set forth above in items 1-5.

The requirement is still deemed proper and is therefore made FINAL.

7. This application contains claims 15-20 are drawn to an invention nonelected with traverse in Paper No. 6. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Specification

8. The disclosure is objected to because of the following informalities: In pages 9-10 of the instant specification that, the brief description of the drawing for Figures 2A-E, 3A-E, 4A-E, and 5A-E are not being complied with the 37 C.F.R. §1.74. It is required that a separate brief description for each figure including sub-figures. See MPEP § 608.01 (f) and 608.02. Appropriate correction is required.
9. Applicants argue that the descriptions of Figures 2A-E, etc are same although the contents of Ag, Cu, etc in each of Figures are different. As admitted by applicants that the descriptions of Figures 2A-E, etc should not be same because the contents of Ag, Cu, etc in each of Figures are different.

Claim Rejections - 35 USC § 103

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter

of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 1-6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 09-94688 (PTO-1449, abstract), USP 6139979 to Takaoka et al (col. 1, lines 53-60), JP 10034376, DE 19816671, or USP 4643875 to Mizuhara (col. 1, lines 37-45 and lines 55-57).

13. Claims 1-14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO9834755.

14. The cited references disclose the features substantially as claimed. The disclosed features include claimed Pb-free Sn based solder composition. The features relied upon described above can be found in the references at their abstracts. The difference between the reference(s) and the claims are as follows: The cited references do not disclose the dissolution rate, liquidus temperature, and/or viscosity. However, the instant Pb-free Sn solder compositions are overlapped by the cited references; consequently, the material properties as recited in the instant claims would have inherently possessed by the teachings of the cited references. Therefore, the burden is on the applicant to prove that the product of the prior art does not necessarily or inherently possess characteristics attributed to the claimed product. In re Spade, 911

F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). It is well settled that a newly discovered property does not necessarily mean the product is unobvious, since the property is inherently possessed in the prior art. See *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977), *In re Swinehart*, 169 USPQ 226 (CCPA 1971), *In re Skoner, et al.*, 186 USPQ 80, and MPEP § 2112.01.

Response to Arguments

15. Applicant's arguments filed July 25, 2001 have been fully considered but they are not persuasive.

16. Applicants argue that the Pb-free solder alloy of JP09-94688 in claim 4 contains Zn and fails to disclose the function of Ni. But, it is well settled that the recitation of "consisting essentially of" limits the scope of a claim to the specified ingredients and those that do not materially affect the basic and novel characteristics of a composition. *Ex parte Davis, et al.*, 80 USPQ 448, 450 (PTO Bd. App. 1948), *In re Janakirama-Rao*, 317 F. 2d 951, 137 USPQ 893, 894 (CCPA 1963), *In re Garnero*, 412 F 2d 276, 162 USPQ 221, 223 (CCPA 1969), and *In re Herz, et al.*, 190 USPQ 461, 463 (CCPA 1976). When applicant contends that modifying components in the reference composition are excluded by the recitation of "consisting essentially of" applicant has the burden of showing the basic and novel characteristic of his/her composition - i.e. a showing that the introduction of these components

would materially change the characteristics of applicant's composition. In *re De Lajarte*, 337 F 2d 870, 143 USPQ 256 (CCPA 1964) and *Ex parte Davis, et al.*, 80 USPQ 448, 450 (PTO Bd. App. 1948). With respect to the function of Ni that applicants may have a different reason for or advantage resulting from doing what the prior art relied upon has suggested does not demonstrate of nonobviousness, *In Re Kronig* 190 USPQ 425, 428 (CCPA 1976) ; *In Re Lintner* 173 USPQ 560 (CCPA 1972). The prior art motivation or advantage may be different than that of applicant while still supporting a conclusion of obviousness. *In re Wiseman* 201 USPQ 658 (CCPA 1979) ; *Ex parte Obiaya* 227 USPQ 58 (Bd. of App. 1985).

17. Applicants' arguments with respect to USP 6139979, JP10034376, DE19816671, USP 4643875, and WO 9834755 as set forth in the instant remarks are noted. The examiner reiterates the responses as set forth in item 16 above.

18. Applicants argue that the alloys in the claims 1-7 and 9 of USP 4643875 do not have Ni. But said U.S. patent discloses the claimed Ni content (see abstract). It is well settled that the teaching of a reference is not limited to preferred embodiments. All disclosures of prior art, including unpreferred embodiments, must be considered in determining obviousness. See *In re Boe*, 148 USPQ 507, 510 (CCPA 1966) and *In re Siebentritt*, 152 USPQ 618. Moreover, under 35 USC § 103, a reference must be considered not only for what it expressly teaches, but also

for what it fairly suggests. In re Lamberti, 545 F.2d 747, 192 USPQ 278 (CCPA 1976); In re Simon, 59 CCPA 1140, 461 F.2d 1387, 174 USPQ 114 (1972); and In re Mills, 470 F.2d 649, 176 USPQ 196 (CCPA 1972). A reference is not limited to what the author describes as his invention. A reference is relevant for all that it contains. In re Heck, 699 F.2d 1331, 1333, 216 USPQ 1038, 1039 (Fed. Cir. 1983).

19. Applicants argue that the claimed limitation is not a “property” of a material. But, applicants have not substantiated their position by factual evidence.

20. Applicants argue that the claimed Ni content is critical. But instant claims 9-14 do not contain Ni. Furthermore, no where in the instant specification as originally filed discloses the claimed Ni or Fe content is critical. Unexpected results must be established by factual evidence. Mere argument or conclusory statements in the specification is not sufficient. In re Geisler, 116 F.3d at 1470. Comparison must be done under identical condition except for the novel features of the invention. In re Brown, 173 USPQ 685 and In re Chapman, 148 USPQ 711. The showing of unexpected results must be occurred over the entire claimed range. In re Clemens, 622 F.2d 1029, 206 USPQ 289, 296 (CCPA 1980). The property or result relied upon must be disclosed in the specification or flow naturally from the teaching of the specification. In re Slocombe, 184 USPQ 740, 743 and In re Davies and Hopkins,

177 USPQ 381 (CCPA 1973). The scope of the showing must be commensurate with the scope of the claims. In re Tiffin, 448 F.2d 791, 792 (Fed. Cir. 1971), In re Coleman, 205 USPQ 1172, and In re Greenfield, 197 USPQ 227. Absent a showing of new and unexpected results, the mere optimizing in a known range for a desired result is within skill of ordinary artisan. In re Aller, et al., 105 USPQ 233.

Conclusion

21. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

The above rejection relies on the reference(s) for all the teachings expressed in the text(s) of the references and/or one of ordinary skill in the metallurgical art would have reasonably understood or implied from the text(s) of the reference(s). To emphasize certain aspect(s) of the prior art, only specific portion(s) of the text(s) have been pointed out. Each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combination of the cited references may be relied on in future rejection(s) in view of amendment(s).

All recited limitations in the instant claims have been met by the rejections as set forth above.

Applicant is reminded that when amendment and/or revision is required, applicant should therefore specifically point out the support for any amendments made to the disclosure. See MPEP § 2163.06 (a) and 37 C.F.R. § 1.119.

Serial No: 09/671,084
Art Unit: 1742

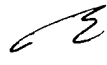
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Ip whose telephone number is (703) 308-2542. The examiner can normally be reached on Monday to Friday from 5:30 A.M. to 2:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Roy V. King, can be reached on (703)-308-1146.

The facsimile phone numbers are (703) 872-9311 (Official Paper only) and (703) 305-7719 (Unofficial Paper only). When filing a FAX in Technology Center 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0651.



SIKYIN IP
PRIMARY EXAMINER
ART UNIT 1742

S. Ip
October 7, 2001